

## NOTES.

THE annual visitation of the Royal Observatory, Greenwich, by the board of visitors, took place on Tuesday last.

A SPECIAL joint meeting of the Royal and Royal Astronomical Societies is being held in the rooms of the Royal Society to-day, to receive preliminary accounts of the observations of the recent eclipse of the sun.

THE Nilson Memorial Lecture will be delivered by Prof. Otto Pettersson, of Stockholm, before the Chemical Society on Thursday next.

THE great kindness and attention shown by the Alcalde and other authorities at Santa Pola to the astronomical party who went there to observe the recent eclipse, and to the captain and officers of *H.M.S. Theseus*, who conveyed the members of the expedition from Gibraltar, occasioned a very pleasing little episode. On leaving Santa Pola a donation of 10*l.* was collected, and left by Captain Tisdall with the Mayor for the benefit of the poor of the town. This gift was highly appreciated by the local authorities, and the amount has been distributed by a local committee. The children in the schools were not forgotten, and each of them received a packet of sweets and a memorial card relating to the eclipse and the visit of the expedition. We are also able to state that the Mayor of Santa Pola has received from the Spanish Government a decoration of the First Order of the Civil Administration. We heartily congratulate him on his new honour, which all who had any relations with him know was well deserved.

AT a public meeting recently held in Belfast, it was decided to renew the invitation to the British Association to visit Belfast in 1902, and a representative deputation was appointed to present the invitation at the forthcoming Bradford meeting of the Association. The last meeting in Belfast took place in 1874, and was under the presidency of Prof. Tyndall.

SIR WILLIAM MACCORMAC is to receive to-day the honorary degrees of M.D. and M.Ch. from the University of Dublin.

THE death is announced of Prof. Boutan, general inspector of public instruction in France. Prof. Boutan was one of the founders of the Société française de Physique, and was also the author, jointly with M. d'Almeida, of a treatise on physics.

THE death is announced of Dr. Karl Lange, professor of pathological anatomy in the University of Copenhagen; also of Dr. Wilhelm Kühne, professor of physiology at Heidelberg.

THE new physical laboratory at Owens College, Manchester, will be opened to-morrow by Lord Rayleigh. The new laboratory will have a larger floor area than that of any other similar institution in the world, with the exception of the Johns Hopkins and the Strasburg laboratories. Great efforts have been made to provide an equipment of the most modern apparatus for use in every branch of physical science, and to maintain conditions which shall ensure their being used to the best advantage. The research laboratories are to be an important feature of the new buildings, and should attract a large number of students. Another feature is the electro-technical wing, which is to constitute a John Hopkinson memorial, and will be formally handed over by the relatives of the late Dr. John Hopkinson, on the occasion of the opening ceremony. It is understood that Dr. C. H. Lees, formerly chief assistant lecturer in the physics department of Owens College, will occupy the post of assistant director of the new laboratories, under Prof. A. Schuster, the director, and that Mr. R. Beattie has been appointed lecturer in electrotechnics.

AT the conversazione to be held at the London Medical Graduates' College and Polyclinic on Wednesday, July 4, Prof. Osler, F.R.S., of Baltimore, will deliver an address on "The

Teaching of Practical Medicine," and the museum will be inaugurated.

THE annual general meeting of the Röntgen Society will be held on Thursday, July 5. The Presidential Address will be delivered by Mr. Wilson Noble.

THE second annual meeting of the Astronomical and Astrophysical Society of America is being held in conjunction with the meeting of the American Association at Columbia University. In addition to the papers to be presented, there will be discussions upon the following subjects:—The eclipse of May 28 last; Observations of Eros to be made at the next opposition; Spectroscopic determinations of motion in the line of sight.

AN important meeting of the Committee of the Liverpool School of Tropical Medicine was held on the 19th inst., when it was reported that the Government were co-operating with the School in the matter of the despatch of the Yellow Fever Expedition to America and Brazil, and that a letter had been received from the Marquess of Salisbury asking whether the Committee wished him to communicate with the British representatives in the countries to be visited by the expedition. The offer was gratefully accepted, and a further letter was received from Lord Salisbury saying that he had asked the British Ambassador at Washington and H.B.M. Consul at Para to obtain all possible facilities from the United States and Brazilian authorities respectively on behalf of the expedition. Official invitations for the expedition to visit Washington had been received from the heads of the medical departments of the U.S. army, and to visit Baltimore from the authorities of the Johns Hopkins University. As has already been stated in these columns, the expedition consists of Dr. Durham (Grocers Research Scholar) and Dr. Walter Myers (John Lucas Walker Student), both of Cambridge. The expedition, which started on Tuesday last, goes first to Canada, and then proceeds direct to Washington and Baltimore. After conferring with the bacteriological experts there, the expedition will go to New York, and sail from that port to Para. Subsequent movements will be guided by circumstances.

AT a dinner given last Monday in honour of the Yellow Fever Expedition, Mr. A. L. Jones, chairman of the school, announced his intention of giving 1000*l.* towards the erection of a Tropical Diseases Hospital in Liverpool in connection with the Royal Southern Hospital, to be associated with the name of Miss Mary Kingsley. It was also announced that Mr. Blaize, of Lagos, and Mr. John Holt, of Liverpool, had promised 500*l.* each to the same object. Two other subscriptions of 100*l.* each were announced.

THE Summer School of Medicine, which was to have been held at Cambridge from June 25 to June 30, has, unfortunately, had to be abandoned in consequence of the meagre number of acceptances received. The necessity for the taking of this step is the more to be regretted, as very careful preparations had been made to insure a successful session; demonstrations of the malarial and other blood parasites, and of the most recent work on cancer, had been arranged for, and in addition to these subjects lectures were to have been given by experts in their several lines of work upon various other matters of medical and surgical interest.

THERE are, it is estimated, about 400 lepers in France. They are scattered about in Brittany, in the Pyrenees, on the shores of the Mediterranean, and in Paris, where they number 150. Among the lepers there are missionaries and nurses who have fallen victims to their devoted care of sufferers in other countries, and officials and soldiers who have contracted the disease in the colonies. An anti-leprosy committee has, says the *British Medical Journal*, recently been formed on the

initiative of Dom Santon, a member of the Benedictine Community of Ligugé, who is also a doctor of medicine, for the care of the lepers in France and the prevention of the spread of the disease. Dom Santon has for many years past devoted himself to the study of leprosy, travelling for that purpose in many parts of the world. After conference with the Council of Hygiene he has acquired a property in the Vosges, where he proposes to establish an asylum for lepers to be called the St. Martin Sanatorium. The plans have been approved by the French Government.

THE National Academy of Sciences of the United States has recommended to the trustees of Columbia University that the Barnard medal be given to Prof. Röntgen for his discovery of the X-rays. The medal, of gold, is awarded quinquennially to the person who shall have made such discovery in physical or astronomical science as, in the judgment of the National Academy of Sciences, shall be esteemed most worthy of the honour.

AN entomological expedition is to be sent into Southern Mexico this summer by the University of the State of Missouri. It will be in charge of Prof. J. M. Stedman, head of the Entomological Department, and will have for its object the making of a biological, largely entomological, survey of the region from Vera Cruz on the Gulf, which is in perpetual tropics, to the top of the volcano Popocatepetl, which is far above the perpetual snow line, and down to Acapulco on the Pacific. This will give all the temperature variations from perpetual tropics to perpetual snow, and will allow of the study of life zones under conditions not to be found elsewhere in North America. The collection will become the property of the University, which is to furnish half the expenses, the other half being borne by Prof. Stedman.

AN expedition, consisting of President Jordan and Mr. John O. Snyder, of the Department of Zoology in Stanford University, has sailed for Japan, for the purpose of making a collection of the fishes and insects of that country. Assistance will be given by other graduates of Stanford University at present resident in Japan.

IT is stated in *Science* that Mr. G. B. Gordon has secured the control of the ruins of Copan, and the lands pertaining thereto, for a period of ten years, with the right to make excavations and to remove to Cambridge, Mass., for preservation, a portion of the objects that may be found.

MR. O. A. TITTMANN has been appointed successor to Dr. H. S. Pritchett as superintendent of the United States Coast and Geodetic Survey, Dr. Pritchett having been elected president of the Massachusetts Institute of Technology.

THE American National Geographical Society's prizes for the best essays on Norse discoveries in America have been awarded to Mr. C. B. Dalton, of New York City, and Mr. K. F. Murray, of Norfolk, Va.

*Science* announces that a donor, who wishes to be anonymous, has presented to the American Museum of Natural History the collection exhibited by Messrs. Tiffany and Co. at the Paris Exposition, consisting of American and foreign cut and uncut precious stones and other objects. The value of the collection is estimated at over 50,000 dollars.

DURING the summer a station will be maintained on Lake Saranac by the New York State Museum, for the study of aquatic insects. The work will be under the direction of Dr. Charles Needham.

THE *Scientific American* states that a new species of petrel has been discovered on the Island of Kauai (Sandwich Islands) by Mr. A. Searle, of the Stanford University. Mr. Searle is

also reported to have found on the same island a new species of seagull. He is about to go to Guam for the purpose of exploring that island, and to make a collection of birds and fishes for the Bishop Museum of Honolulu.

EXCELLENT results have been obtained by the French Government from experiments made with wireless telegraphy. The *Engineer* of June 15 says that the demonstrations showed that communication could be maintained, between ship and shore, to a distance of about sixty miles with comparative ease, only the height of the masts of the Government ship *Utile* preventing longer distances being attained. In consequence of these achievements the French Government have decided to equip their Mediterranean Squadron with the necessary apparatus.

WIRELESS telegraphy stations are, by the instructions of the Chief Signal Service Officer of the United States, to be established in the harbour of San Francisco, in Porto Rico and the Philippines.

AMONG the numerous congresses arranged to take place in connection with the Paris Exposition, in addition to those to which attention has already been called in these columns, may be mentioned the following, dealing respectively with:—Automobiles, on July 9; medical electrology and radiology, from July 27 to August 1; medicine, from August 2 to 9; physics, from August 6 to 11, and on the same dates, technical and industrial education; chemistry, from August 6 to 11; hygiene and demography, from August 10 to 17; hypnotism, from August 12 to 15; electricity, from August 18 to 25; prehistoric anthropology and archæology, from August 20 to 25; ethnology, from August 26 to September 1; railroads, from September 15 to 23; acetylene, from September 23 to 28.

IT is satisfactory to find that the present troubles in South Africa have not interfered with Museum progress in the larger towns of Cape Colony. From the *Report* of the Committee of the Albany Museum for 1899, we learn that it was expected the new buildings would be ready for opening about July 1.

A SEVERE thunderstorm occurred in London on the 25th inst., accompanied by heavy rain and hail. The weather had been very unsettled for some days, with gales on our exposed coasts. On the evening of the 24th a storm area lay off the north-west coast of Ireland; this subsequently took a somewhat unusual south-easterly direction. At 8 a.m. on the 25th the centre lay over the Midland Counties, and next morning had traversed the south-eastern part of the English Channel. The rainfall on the 24th and 25th amounted to about an inch in several parts of the United Kingdom. The temperature continues low for the season over the whole country.

TWO specimens of the egg of the Great Auk were sold by auction at Stevens's Rooms last week, and realised 315 and 180 guineas respectively. The more important of the two eggs is an unrecorded one from a French collection, and is described as the finest specimen known of a special type of marking. The price just obtained for it establishes a record, 300 guineas having, until this sale, been the highest amount ever received. About seventy-five eggs of the Great Auk are known to be in existence.

ACCORDING to *Science*, the Millinery Merchants' Protective Association of America has proposed to the various Audubon Societies of the country to cease killing or buying any North American birds, except such as are edible and killed in season, if the societies will undertake not to interfere with the use of these birds or with skins imported from countries not in North America.

THE *Pioneer Mail* (Allahabad) of June 1, 1900, has an interesting article on the recent discoveries in the neighbourhood of the previously identified birthplace of Buddha. Mr. W. Peppé, owner of the Birdpur estate on the Nepal frontier, excavated in January 1898 a reliquary (stūpa) of Buddha, and found relics in a casket inscribed in characters not later than the third, and possibly even of the fourth, century B.C. During last winter Prof. Rhys Davids revisited the spot, and gave to the Royal Asiatic Society at its meeting in April last the result of his own local observations and examination of the relics, which is that they have a very fair title to be considered genuine remains of Buddha. These are stated to have been divided after the cremation into eight portions, and distributed amongst sections of the Sakya clan, which inhabited this region. The relics themselves are fully described and illustrated in the Royal Asiatic Society's *Journal* for July 1898, and further notices on the subject are to be looked for in forthcoming numbers of the same journal, and also (by Dr. Hoey) in the *Journal* of the Asiatic Society of Bengal. It is hoped that the Government of India may support Mr. Peppé in further excavations in this evidently promising locality.

THE *Scientific American* for June 9 gives the following interesting particulars of a specially built train used on the Baltimore and Ohio Railway in a series of experiments upon the atmospheric resistance to railroad trains. The trial train was made up of six passenger coaches, such as are used on suburban service. They were provided with four-wheeled trucks, 33-inch cast-iron wheels, and 3 $\frac{3}{4}$ -inch journals, and the total weight, exclusive of engine and tender, was 325,500 pounds. In preparation for the test all external obstructions were removed from the train. The roofs of the cars were arched; the windows set out flush with the sides of the cars; and the sheathing was laid lengthwise instead of perpendicularly as in other cars. The sheathing extended to within eight inches of the track and covered the trucks. Suitable openings permitted access to the axle boxes, and a sliding door led into the substructure at opposite sides of the car centre. When the cars were coupled, two diaphragms met and enclosed the space between the cars, from edge to edge of the roof line. The platform doors consisted of roller curtains which dropped to the steps and were flush with the sides. Flexible spring curtains completed the vestibule from the roof to the bottom of the car. When the train was coupled it presented the appearance of one long sinuous and flexible car. The tender was of peculiar construction, and continued the unbroken line from the engine cab to the baggage car, to which it was vestibuled. In its entire construction the train complied with the varied demands of practical operation. While the plans called for partial sheathing of the locomotive, it was decided to make the first tests with remodelled cars only, in order to prove how far the existing system of car construction is responsible for the atmospheric resistance of trains. The sheathed train, consisting of six cars and hauled by an engine weighing 57 tons, made the run of 40 miles from Baltimore to Washington in 37 minutes and 30 seconds. One mile was made in 40 seconds, and two miles in 81 seconds. From Beltsville to College, a distance of 4 $\frac{1}{2}$  miles, the time was 3 minutes and 10 seconds, a sustained speed of 85 miles an hour. By far the most remarkable run, however, was from Annapolis Junction to Trinidad, a distance of 20.1 miles in 15 minutes and 20 seconds, at an average speed of 78.6 miles an hour. The first seven miles of this run was up a grade from 25 to 55 feet to the mile, and it was covered in a fraction over 6 minutes; while the last 5 miles on the down grade from Alexander Junction to Trinidad was covered in 2 minutes and 55 seconds, a speed of 102.8 miles an hour. The locomotive used has cylinders 20 × 24, with four coupled 78-inch drivers. The boiler carried 165 pounds of

steam. With ordinary firing the steam never dropped below 160 pounds during the entire run. The best time previously made on the line was a few seconds less than 39 minutes, on which occasion the train consisted of four Pullman cars hauled by the company's fastest and most powerful passenger engine.

THE Report of the Kew Observatory Committee for the year 1899 has been published in the *Proceedings* of the Royal Society in the usual form. From January 1 last the Observatory was incorporated with the National Physical Laboratory, and will no doubt greatly extend its useful work. The Observatory Committee, as hitherto constituted, has ceased to exist, but the work of the Observatory will be carried on by the same staff as heretofore. During the past year the magnetic work is said to have been unusually onerous, as many colonial and foreign institutions have sent their instruments to the Observatory to be verified. No very large magnetic disturbances were registered; the mean Westerly Declination was 16° 57'. The electrograph has worked in a satisfactory manner during the year, and, with the sanction of the Meteorological Council, the records for a complete year have been lent to Mr. C. T. R. Wilson, of Cambridge, for investigation. The verification of instruments of all kinds amounted to over 22,000, a falling off of nearly 2400 as compared with the work of the previous year. A seismograph has been in regular operation during the year; a disturbance was particularly noticeable on September 10.

THE dynamical principle of atmospheric circulation is treated by Prof. V. Bjerknes in the *Meteorologische Zeitschrift*, 1900, iii., iv. Starting with the property that the circulation theorems of abstract hydrodynamics (according to which the circulation in any circuit formed by the same particles is constant) only hold good when the pressure is a function of the density alone, Prof. Bjerknes points out that in the atmosphere this condition is not satisfied owing to local differences both in the temperature and in the degree of moisture present in the air. Of these two causes the first seems to be the most important. The conception of "solenoids" is then introduced, a solenoid being an elementary unit tube bounded by pairs of consecutive surfaces of equal volume and equal pressure respectively. The fundamental proposition in connection with circulation asserts that the rate of change of the circulation in any circuit is proportional to the number of solenoids enclosed by that circuit. A number of diagrams are given representing the cases of land and sea breezes, trade-winds, local upward currents, hill and valley winds, cyclones and anticyclones. The omission to take account of the extra complications arising from viscosity and terrestrial rotation probably prevents these investigations from being utilised for calculations in connection with weather prediction; and for this reason Prof. Bjerknes' theory must be rather regarded in the same light as other dynamical theories of physical phenomena, in which certain simplifications not occurring in nature are made in order to bring the calculations within the range of mathematical analysis. But it is only by the aid of such simplifications that order can be evolved out of the chaos of statistics furnished by the experimentalist.

AN account of the seismological observatory of Quarto, near Florence, together with the observations of more than 170 earthquakes made during the meteoric year 1899 (November 1, 1898–October 31, 1899), is published by the director, Mr. D. R. Stiattesi, in the first *Bollettino Sismografico* of the observatory. Through the generosity of Count G. Bastogi, of Florence, this must be one of the most completely equipped observatories in Italy. It contains two Vicentini microseismographs (one with a mass of 500 kg. and a length of 9.28 metres), a pair of horizontal pendulums with mechanical registration, and a pair of geodynamic levels, besides a large number of seismoscopes and tromometers, all of Italian design.

IN the June number of the *Zoologist*, Mr. A. H. Meiklejohn raises the question as to the manner in which the cuckoo carries her egg when about to deposit it in the nest of the bird selected to act as foster-mother. It is commonly supposed that the egg is carried in the beak, and in Prof. Newton's edition of "Yarrell" several instances are quoted where observers state they have actually seen the *modus operandi*. Mr. Meiklejohn, who was fortunate enough to observe a cuckoo in the act of depositing its egg in a robin's nest, is, however, of opinion that the throat of the bird serves as the receptacle for the egg. He states that (1) the cuckoo was constantly opening her mouth during a preliminary encounter with the robins; (2) that the egg was certainly not laid in the ordinary way in the nest; (3) that the egg itself was slightly moist and sticky; (4) that the throat of the bird presented a slightly distended appearance, which might well have been due to the presence of the egg. It will be interesting to note what his fellow-ornithologists think of the author's explanation of the mystery.

IN American laboratories it appears that the place of the common frog is largely taken by the furrowed salamander (*Necturus maculatus*), which forms the general subject for anatomical investigation. Mr. W. S. Miller, assistant professor of anatomy in the Wisconsin laboratory, has accordingly undertaken to describe in detail the anatomy of this amphibian, and papers on its lungs, vascular system and brain appear in the latest issue of the *Bulletin* of the University. The author calls attention to the great amount of individual variation which occurs in the vascular system of *Necturus*.

IN a communication to the latest issue of the *Proceedings* of the Philadelphia Academy, Mr. Witmer Stone shows that the various species of eider-duck, as well as the red-breasted merganser, have a "summer moulting plumage" analogous to that assumed by the mallard after the breeding season. As in the last-named species, this plumage lasts only during the time when the birds are unable to fly, owing to the shedding of their flight feathers, and its dull coloration is doubtless for the purpose of rendering them as inconspicuous as possible during this period. The author calls attention to the circumstance that the feathers of this temporary dress, like those of the first plumage of all birds, are very inferior in their structure. The moulting plumage of the king-eider has hitherto been considered as the ordinary dress of immature birds.

IN a paper on mosquitoes, by Mr. W. R. Colledge, which appears in vol. xv. of the *Proceedings* of the Royal Society of Queensland, the author states that he has succeeded in keeping one of these insects alive for three weeks, and that Dr. J. Bancroft has had some in captivity for eighty or ninety days. Probably their ordinary full term of existence is three months. In cases where the application of kerosene is inconvenient, the introduction of a few minnows into the ponds or pools in which they breed will speedily lead to the destruction of the larvæ and pupæ.

THE origin and formation of the Red Sea are discussed in a brief article by M. A. Issel (*Bull. Soc. Belge de Géol.*, tome xiii. April) Following Suess, he considers that the lacustrine conditions of the Arabic depression ("Lacus Arabicus") were probably determined in late Miocene times. He maintains that then, or early in Pliocene times, the Nile, a mightier river than it now is, emptied its waters directly into the great lake, the outlet being an immense waterfall. Even in post-Pliocene times the Nile continued to send a portion of its waters into the Red Sea, although it had meanwhile formed new outlets into the Mediterranean area. Traces of this former fluvial connection are furnished in the actual faunas of the two

seas. The opening of the Straits of Bab-el-Mandeb was caused after a period of volcanic activity, the eruptions being succeeded by subsidence and by erosion of the barrier which separated the Red Sea from the Indian Ocean. It is remarked that the opening of the Suez Canal has sensibly affected the distribution of some forms of life.

IN a paper on the fruiting of the blue flag, or Iris, published in the May number of the *American Naturalist*, Prof. J. G. Needham shows that, in addition to the bees by which they are fertilised, the flowers of this plant are visited by a number of insects of other kinds. The visits of these latter appear for the most part to have been hitherto noticed; and as many of these illicit visitors are of no use for the purpose of fertilisation, the ill-adapted ones are, according to the author, habitually deceived by the flower itself as to its proper entrance. Of the various visitors, two small bees of the genera *Clisodon* and *Osmia* were thoroughly at home in the flower, alighting at the entrance and passing immediately down the narrow passage leading into the nectary, and as quickly emerging and flying off. On the other hand, numerous kinds of Syrphid flies spent a much longer time on the flower, which many of them visited only for pollen. Other visitors were certain small flower-beetles and weevils, which never by any chance succeeded in reaching the nectary.

TWO interesting lectures by Prof. D. T. MacDougal, delivered at the Woods Holl Marine Biological Laboratory, are reprinted from the *Bulletin* of the New York Botanic Garden. In his address on the "Significance of Mycorrhizas" a general summary is given of our present knowledge of the occurrence of these organisms, both endotropic and ectotropic. All known species of mycorrhizal fungi are stated to belong to the families Oomycetes, Pyrenomycetes, Hymenomycetes, and Gasteromycetes; and it is suggested that their further study and identification may result in a considerable increase in our knowledge of the physiology of vegetable life; and that their culture may not be without importance in the nutrition of a number of perennial flowering plants. The lecture on the "Influence of inversions of temperature, ascending and descending currents of air, upon distribution" is devoted to an explanation of the distribution of the flora in the United States, especially in the region of the great cañons.

APPENDIX III. for 1900 of the *Kew Bulletin of Miscellaneous Information* is entirely occupied with a list of the additions to the Library of the Royal Botanic Gardens, made during the year 1899

THE *West Indian Bulletin*, vol. i. No. 3, published in Barbados, contains the completion of the report on the papers read at the Agricultural Conference held in that island, and of the discussions arising out of them.

THE last two parts which have reached us of Engler's *Botanische Jahrbücher* (vol. xxviii. Hefts 1 and 3) are occupied entirely with the useful description and systematic papers which form so conspicuous a character of the work. Among those relating to flowering plants are the following, or instalments of them:—Compositeæ of Ecuador, by Hieronymus; The flora of Central America, by Loesener; Classification of the Calyceraceæ, by Reiche; Revision of the genus *Linnaea*, by Graebner; African Verbenaceæ, Borragineæ, and Labiatae, by Gürke; *Triplochiton*, a new genus of Malvales from the Cameroons, constituting the type of a new family, Triplochitonaceæ, by Schumann; Report of the botanical results of the Nyassa Lake Expedition, by the Editor. Herr Hennings and Diétel furnish respectively instalments of their papers on the Fungi and on the Uredineæ of Japan.

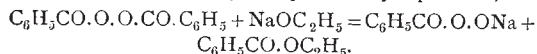
WE have received a number of papers by different officers of the Observatory of Catania. Most of these we have noticed on their first appearance. Among the others, we may mention a valuable memoir, by Mr. S. Arcidiacono, on the eruptive period of Etna from July 19 to August 5, 1899, in which he points out the approximate coincidence of the great explosion on the former day with the total cessation of the flow of lava in Vesuvius and a strong earthquake in Latium, and also an interesting account of the history of the observatories of Catania and Etna.

THE *Mittheilungen aus dem Roemer-Museum*, Hildesheim (No. 11, April 19), includes a paper, by Mr. A. R. Grote, on the phylogeny of the families of butterflies, with a genealogical tree. It is a continuation and amplification of previous papers on the same subject, published by the author in Germany and America, and is mainly based on neuriation. Like many authors, Mr. Grote divides the butterflies into two main superfamilies, Papilionides and Hesperidae; but it will surprise many entomologists to find that all the butterflies except the true Papilionidæ are referred to the Hesperidae.

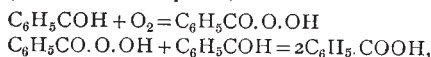
A NEW journal has been started in Berlin, the first number of which bears the title "Laboratorium et Museum," while in the second number the words "et Clinicum" are added. The journal is to be of an international character, and includes articles and notes in English, French and German. The title of the journal is sufficiently suggestive in itself of the contents, which comprise descriptions of new apparatus and reagents, methods of preparation, notices of new books, obituary notices, and lists of trade catalogues, of which the publishers will send copies on application.

DR. FRANCESCO FOSSATI has published in the *Memorie del R. Istituto Lombardo* a bibliography of the writings of Volta. Several such lists have already been published: one in 1813 by Prof. Configliachi, containing the titles of forty-four works; one in 1877 by Prof. Pietro Riccardi, containing sixty titles; while the collection procured by Antinori in 1816 contained sixty-seven writings. The present bibliography is partly the outcome of a suggestion made by Prof. Alessandro Volta, junr., at the Como Electrical Congress last year, and it contains the titles of 231 writings.

In the current number of the *Berichte* (p. 1569) Baeyer and Villiger describe some of the properties of the new hydride of benzoylsuperoxide,  $C_6H_5CO.O.OH$ . The substance is obtained by the action of sodium ethylate upon benzoylsuperoxide,



The sodium salt of the new compound is formed together with ethyl benzoate. The ethyl benzoate is removed with ether, and the hydride of benzoylsuperoxide separated by acidifying and extracting with chloroform. On distilling the chloroform, the hydride remains as a colourless crystalline mass, which melts at 41-43°. It is very soluble in the ordinary solvents, with the exception of benzene. The smell is penetrating and pungent, resembling, in the dilute state, hypochlorous acid, but not ozone. In its oxidising action on potassium iodide or aniline, and in its reducing action on permanganate, it stands midway between hydrogen peroxide and Caro's reagent (potassium persulphate dissolved in concentrated sulphuric acid). With benzoyl chloride it forms benzoylsuperoxide; with acetic anhydride, benzoylacetylsuperoxide. The oxidation of benzaldehyde to benzoic acid by exposure to air is shown to be due to the agency of this new compound,



which is formed as an intermediate product.

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THE additions to the Zoological Society's Gardens during the past week include a Smooth-headed Capuchin (*Cebus monachus*) from South-east Brazil, presented by Mr. F. Wallace; an Indian Desert Fox (*Canis leucopus*) from Persia, presented by Captain D. J. Leiper; a Small Hill Mynah (*Gracula religiosa*) from India, presented by Captain R. York Heriz, R.N.; two Yellow-bellied Liothrix (*Liothrix luteus*) from India, presented by Miss Petrocochino; a Cockateel (*Calopsittacus novae hollandiae*) from Australia, presented by Mrs. Harry Blades; four Ring-necked Parrakeets (*Palaeornis torquatus*) from India, presented by Mr. J. M. G. Bate; three Chaplain Crows (*Corvus capellanus*) from Southern Persia, presented by Mr. B. T. Finch; two Green Lizards (*Lacerta viridis*), four Viperine Snakes (*Tropidonotus viperinus*), a Smooth Snake (*Coronella austriaca*), two Marbled Newts (*Molge marmorata*), European, presented by the Rev. F. W. Haines; an Orang-outang (*Simia satyrus*, ♂) from Borneo, five — Mole Rats (*Spalax* sp. inc.) from East Africa, a Grey Parrot (*Psittacus erithacus*) from West Africa, a Yellow-cheeked Amazon (*Chrysotis autumnalis*) from Honduras, nine Mountain Witch Ground Doves (*Geotrygon cristata*) from Jamaica, a Hocheur Monkey (*Cercopithecus nictitans*) from West Africa, seven Brazilian Tortoises (*Testudo tabulata*) from South America, five American Box Tortoises (*Cistudo carolina*) from North America, deposited; two Peba Armadillos (*Tatusia peba*) from South America; three Spotted Owls (*Athene brama*) from Madras; three White-throated Finches (*Spermophila albogularis*) from Brazil, a Thick-billed Seed Finch (*Oryzoborus crassirostris*) from South America, a White-eared Conure (*Pyrrhura leucotis*) from Brazil, a Loggerhead Turtle (*Thalassochelys caretta*) from the Tropical Seas, purchased; two Burriel Wild Sheep (*Ovis burriel*), a Thar (*Hemitragus eplaicus*), born in the Gardens; two Pied Mynahs (*Sturnopastor contra*), bred in the Gardens.

#### OUR ASTRONOMICAL COLUMN.

##### ASTRONOMICAL OCCURRENCES IN JULY.

- July 3. 8h. om. to 9h. 11m. B.A.C. 4006 (mag. 5.7) occulted by the moon.
4. 1h. Mercury at greatest elongation (26° 2' east).
5. Jupiter in conjunction with β Scorpii.
8. 11h. 24m. to 11h. 54m. δ Scorpii (mag. 2.5) occulted by the moon.
8. 13h. Jupiter 1° 35' north of the moon.
9. 10h. 50m. to 12h. 2m. 24 Ophiuchi (mag. 5.6) occulted by the moon.
9. Pallas in opposition to the sun.
10. 10h. 18m. to 11h. 10m. 33 Sagittarii (mag. 6.0) occulted by the moon.
10. 12h. 19m. to 13h. 18m. ξ² Sagittarii (mag. 3.5) occulted by the moon.
10. 16h. Saturn 0° 48' south of the moon.
14. 9h. 43m. to 10h. 17m. c¹ Capricorni (mag. 5.2) occulted by the moon.
15. Venus. Illuminated portion of disc, = 0.018. Mars = 0.948.
15. 8h. 29m. to 9h. 21m. κ Aquarii (mag. 5.5) occulted by the moon.
15. 10h. 11m. Minimum of Algol (β Persei).
16. 11h. 3m. 11h. 42m. 16 Piscium (mag. 5.6) occulted by the moon.
21. 13h. 2m. to 13h. 52m. 53 Tauri (mag. 5.5) occulted by the moon.
21. 14h. 53m. to 15h. 12m. D.M. + 20°, 751 (mag. 5.9) occulted by the moon.
25. Giacobini's comet situated close to α Cygni.
28. Epoch of the Aquarid meteoric shower (Radiant 340° - 12°).
31. Ceres in opposition to the sun.

THE NEXT TOTAL ECLIPSE OF THE SUN.—We have recently received *Nautical Almanac Circular* No. 18, issued under the superintendence of Dr. Downing. This pamphlet